Translation

PCT/JP2003/004638

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference FP03-0063-00	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/JP2003/004638	International filing date (*day/month/year*) 11 April 2003 (11.04.2003)	Priority date (*day/month/year*) 17 April 2002 (17.04.2002)
International Patent Classification (IPC) or national classification and IPC G01J 1/02, H01J 40/04		
Applicant HAMAMATSU PHOTONICS K.K.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 4 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
11 April 2003 (11.04.2003)	16 January 2004 (16.01.2004)
Name and mailing address of the IPEA/JP Facsimile No.	Authorized officer Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/JP2003/004638

I. Basis of the report

1. With regard to the elements of the international application:*

☒ the international application as originally filed

☐ the description:

pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

☐ the claims:

pages _____, as originally filed
pages _____, as amended (together with any statement under Article 19
pages _____, filed with the demand
pages _____, filed with the letter of _____

☐ the drawings:

pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

☐ the sequence listing part of the description:

pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language _____ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).

☐ the language of publication of the international application (under Rule 48.3(b)).

☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____
☐ the claims, Nos. _____
☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* *Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).*

** *Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.*

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V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-6	YES
	Claims		NO
Inventive step (IS)	Claim	6	YES
	Claims	1-5	NO
Industrial applicability (IA)	Claims	1-6	YES
	Claims		NO

2. Citations and explanations

Document 1: Microfilm of the specification and drawings annexed to the written application of Japanese Utility Model Application No. 83393/1987 (Laid-Open Utility Model No.190935/1988, (Yamatake-Honeywell Co., Ltd.), December 8, 1988 (12.08.88)
Document 2: JP, 7-50149, A (Hamamatsu Photonics K.K.), February 21, 1995 (02.21.95)

Claims 1, 2 and 4

The inventions of claims 1, 2 and 4 do not appear to involve an inventive step based on documents 1 and 2 cited in the ISR.

Document 1 describes a "light sensor" comprising an insulating substrate, a cathode emitting photoelectrons by incidence of ultraviolet rays, an anode collecting photoelectrons emitted from said cathode, and a glass bulb housing said cathode and said anode, wherein said cathode and said anode present comb-tooth interdigital shapes so that they mesh with each other and are disposed on the same surface of said insulating substrate. Adopting the constitution of the "light sensor" described in document 1 in phototube type photosensor device described in document 2 that does not ionize gas and in which the interior portion of the casing part is maintained in a vacuum would be obvious to a person skilled in the art.

Claims 3 and 5

The inventions of claims 3 and 5 do not appear to involve an inventive step based on documents 1 and 2 cited in the ISR.

Document 2 describes a phototube type photosensor device constituted so as to have positional resolution by providing a plurality of pixel electrodes. In the "light sensor" constituted based on the technical matters described in documents 1 and 2, having positional resolution by providing a plurality of anodes that collect photoelectrons would be easy for a person skilled in the art. Further, in so doing, constituting a cathode from a single electrode so as to make it wider than the anode is a mere matter of design.

Claim 6

The invention of claim 6 is neither described nor suggested in any of the documents cited in the ISR, and therefore appears to be novel and involve an inventive step.

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Supplemental Box
(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of Box V. 2:

A phototube type photosensor device, wherein, with respect to a cathode and anode disposed on the same surface of a substrate having electrical insulation, the cathode comprises a plurality of core cathode parts disposed so as to radially extend and branch cathode parts disposed so as to intersect with each core cathode part, and the anode comprises multiple core anode parts disposed so as to radially extend between said core cathode parts adjacent thereto and branch anode parts disposed so as to intersect with the core anode parts, and said branch cathode parts and said branch anode parts are disposed so as to overlap each other in the radial direction, is not obvious to a person skilled in the art.